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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,036	08/01/2006	Fumio Kato	043888-0495	3603

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EXAMINER	
LEE, CYNTHIA K	

ART UNIT	PAPER NUMBER
1795	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/588,036	KATO ET AL.	
	Examiner	Art Unit	
	CYNTHIA LEE	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 March 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/29/2010 has been entered.

Response to Amendment

This Office Action is responsive to the amendment filed on 9/9/2009. Claims 11 and 12 have been added. Claims 1 and 3-12 are pending. Applicant's arguments have been considered. Claims 1 and 3-12 are non-finally rejected for reasons stated herein below.

Information Disclosure Statement

The Information Disclosure Statement (IDS) filed 5/6/2010 has been placed in the application file and the information referred to therein has been considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US 2005/0008936) in view of Yano (US 6235428) and Tanigawa (US 2002/0024041).

Takahashi discloses an alkaline battery comprising a positive electrode, a negative electrode and an alkaline electrolyte, said positive electrode including a positive electrode material mixture containing manganese dioxide and nickel oxyhydroxide [0072].

Regarding the limitation "electrolytic" manganese dioxide, it has been considered but was not given patentable weight because the courts have held that the method of forming the product is not germane to the issue of patentability of the product itself.

Takahashi discloses that at least one of Zn, Co, and Mg can be dissolved in the nickel oxyhydroxide [0191]. Takahashi discloses a tap density of 2.0 to 2.5 g/cm^3 after 200 taps [0057]. Regarding the number of taps, it is a method determining the number of taps. The Examiner notes that 200 taps of Takahashi and 500 of Applicant's taps would results in similar tap density.

Takahashi discloses an average particle size of 5 to 50 um [0069]. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2144.05.

Takahashi does not disclose the average nickel valence. Yano teaches a nickel oxyhydroxide serving as the positive electrode active material preferably has a valence of nickel of 3.0 through 3.8 when fully charged. Yano teaches that the nickel valence affects the battery capacity, thus clearly teaching that nickel valence is a result effective variable. See Table 10. It has been held by the courts that discovering an optimum value or workable ranges of a result-effective variable involves only routine skill in the art, and thus not novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the valence of nickel oxyhydroxide, as taught by Yano, for the benefit of obtaining sufficient discharge capacity. Further, it has been held that a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). See MPEP 2144.05.

Takahashi discloses that at least one of Zn, Co, and Mg can be dissolved in the nickel oxyhydroxide [0191], but does not disclose the amount of Mg. Tanigawa teaches of dissolving 3 wt% Mg in 100 parts by wt nickel oxyhydroxide [0085]. Elements are added to a positive active material to improve the capacity (See Table 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add various amounts of dissolved elements for the benefit of increasing the capacity of the battery. Tanigawa clearly teaches that the dissolved element is a result effective variable. It has been held by the courts that discovering an optimum value or workable

ranges of a result-effective variable involves only routine skill in the art, and thus not novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See MPEP 2144.05.

Regarding claim 3, the amount of nickel oxyhydroxide is 30 wt%, thus the amount of manganese dioxide is 70 wt% [0074].

Regarding claim 4, said positive electrode material mixture further comprises graphite powder. See Abstract. The ratio of the active material and graphite is 10:1 [0046]. The ratio would be the same for the active material of manganese dioxide and nickel oxyhydroxide [0074]. Thus, the amount of said graphite conductive material is 1/(10+1), or 9% relative to the total amount of said manganese dioxide, said nickel oxyhydroxide and said graphite conductive material contained in said positive electrode material mixture.

Regarding claim 5, Takahashi does not disclose the electrode material mixture further comprising a rare-earth oxide. Yano teaches of adding a rare-earth compound, such as a Y2O3, to the nickel oxyhydroxide active material (12:37, 65). The amount added is 1/(100+10+1), or 0.9%. Yano discloses that adding a rare-earth compound prevents battery leakage compared to battery C3 that does not contain a rare-earth compound (12:45, Table 8). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a rare-earth compound, such as Y2O3, for the benefit of preventing battery leakage.

Claims 6, 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US 2005/0008936) in view of Yano (US 6235428).

Takahashi discloses an alkaline battery comprising a positive electrode, a negative electrode and an alkaline electrolyte, said positive electrode including a positive electrode material mixture containing manganese dioxide and nickel oxyhydroxide [0072].

Regarding the limitation "electrolytic" manganese dioxide, it has been considered but was not given patentable weight because the courts have held that the method of forming the product is not germane to the issue of patentability of the product itself.

Takahashi discloses that at least one of Zn, Co, and Mg can be dissolved in the nickel oxyhydroxide [0191]. Takahashi discloses a tap density of 2.0 to 2.5 g/cm^3 after 200 taps [0057]. Regarding the number of taps, it is a method determining the number of taps. The Examiner notes that 200 taps of Takahashi and 500 of Applicant's taps would results in similar tap density.

Takahashi discloses an average particle size of 5 to 50 um [0069]. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2144.05.

Takahashi does not disclose the average nickel valence. Yano teaches a nickel oxyhydroxide serving as the positive electrode active material preferably has a valence of nickel of 3.0 through 3.8 when fully charged. Yano teaches that the nickel valence

affects the battery capacity, thus clearly teaching that nickel valence is a result effective variable. See Table 10. It has been held by the courts that discovering an optimum value or workable ranges of a result-effective variable involves only routine skill in the art, and thus not novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the valence of nickel oxyhydroxide, as taught by Yano, for the benefit of obtaining sufficient discharge capacity. Further, it has been held that a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). See MPEP 2144.05.

Regarding claim 8, Takahashi discloses that the amount of nickel oxyhydroxide is 30 wt%, thus the amount of manganese dioxide is 70 wt% [0074].

Regarding claim 9, Takahashi discloses that said positive electrode material mixture further comprises graphite powder. See Abstract. The ratio of the active material and graphite is 10:1 [0046]. The ratio would be the same for the active material of manganese dioxide and nickel oxyhydroxide [0074]. Thus, the amount of said graphite conductive material is 1/(10+1), or 9% relative to the total amount of said manganese dioxide, said nickel oxyhydroxide and said graphite conductive material contained in said positive electrode material mixture.

Regarding claim 10, Takahashi does not disclose the electrode material mixture further comprising a rare-earth oxide. Yano teaches of adding a rare-earth compound,

such as a Y2O3, to the nickel oxyhydroxide active material (12:37, 65). The amount added is 1/(100+10+1), or 0.9%. Yano discloses that adding a rare-earth compound prevents battery leakage compared to battery C3 that does not contain a rare-earth compound (12:45, Table 8). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a rare-earth compound, such as Y2O3, for the benefit of preventing battery leakage.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US 2005/0008936) in view of Yano (US 6235428) as applied to claim 6, further in view of Tanigawa (US 2002/0024041).

Takahashi modified by Yano teaches all the elements of claim 6. Takahashi discloses that at least one of Zn, Co, and Mg can be dissolved in the nickel oxyhydroxide [0191], but does not disclose the amount of the dissolved element. Tanigawa teaches of dissolving 3 wt% Mg in 100 parts by wt nickel oxyhydroxide [0085]. Elements are added to a positive active material to improve the capacity (See Table 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add various amounts of dissolved elements for the benefit of increasing the capacity of the battery.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US 2005/0008936) in view of Yano (US 6235428) and Tanigawa (US 2002/0024041) as applied to claim 4, further in view of Hayashi (US 6027834).

Takahashi modified by Yano and Tanigawa does not teach wherein said positive electrode material mixture further comprises at least one rare-earth oxide selected from the group consisting of Er2O3, Tm2O3, Yb2O3 and Lu2O3, and the amount of said rare-earth oxide. Hayashi teaches of incorporating rare earth oxides to a positive material in an alkaline battery. The positive active material includes among other materials, nickel oxide and nickel oxyhydroxide (3:10-15). Hayashi teaches that the addition of rare earth oxides improves the efficiency of the positive electrode at the time of charging at high temperatures. See Abstract. Examples include Er2O3 and Yb2O3. See Table 1. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Er2O3 and Yb2O3 to the positive active material of Takahashi modified by Yano and Tanigawa, as taught by Hayashi, for the benefit of charging the battery at a higher temperature. Hayashi teaches that the rare earth oxide is a result effective variable. It has been held by the courts that discovering an optimum value or workable ranges of a result-effective variable involves only routine skill in the art, and thus not novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See MPEP 2144.05.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US 2005/0008936) in view of Yano (US 6235428) as applied to claim 9, further in view of Hayashi (US 6027834).

. Takahashi modified by Yano does not teach wherein said positive electrode material mixture further comprises at least one rare-earth oxide selected from the group

consisting of Er2O3, Tm2O3, Yb2O3 and Lu2O3, and the amount of said rare-earth oxide. Hayashi teaches of incorporating rare earth oxides to a positive material in an alkaline battery. The positive active material includes among other materials, nickel oxide and nickel oxyhydroxide (3:10-15). Hayashi teaches that the addition of rare earth oxides improves the efficiency of the positive electrode at the time of charging at high temperatures. See Abstract. Examples include Er2O3 and Yb2O3. See Table 1. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Er2O3 and Yb2O3 to the positive active material of Takahashi modified by Yano, as taught by Hayashi, for the benefit of charging the battery at a higher temperature. Hayashi teaches that the rare earth oxide is a result effective variable. It has been held by the courts that discovering an optimum value or workable ranges of a result-effective variable involves only routine skill in the art, and thus not novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See MPEP 2144.05.

Response to Arguments

Applicant's arguments filed 3/29/2010 have been fully considered but they are not persuasive.

Applicant asserts that claims 1 and 6 of the present disclosure claim a nickel oxyhydroxide having a valence of 2.95 to 2.99, and thus Yano actually teaches against the use of a battery of claims 1 and 6. Applicant asserts that Yano teaches a nickel oxyhydroxide positive electrode active material having a valence of 3.0 to 3.8. Yano

further states that when the nickel valence is less than 3.0, a sufficient discharge capacity is difficult to obtain (see, col. 4:35-40 of Yano).

In response, it is the Examiner's position that Applicant's 2.95-2.99 is close enough to Yano's 3.0 that one of ordinary artisan would expect similar properties. Further, instant Specification [0072] Table 3 discloses similar discharge time between nickel valence of 2.99 and 3.02. Further, the instant Specification [0073] states that "The results of Table 3 show that the batteries P2 to P5 containing the solid solution nickel oxyhydroxides P2 to P5 having an average nickel valence of 2.95 to 3.05 in which Mg was dissolved exhibited higher characteristics during the high loaded discharge and pulse discharge than other batteries." Thus, the Examiner notes that Applicant's nickel valence of 2.95-2.99 would have been obvious in light of Yano's teachings. It has been held that a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). See MPEP 2144.05.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Lee/
Examiner, Art Unit 1795